

X-RAY ANALYZER AND SEMICONDUCTOR MANUFACTURING DEVICE USING THE SAME

X-RAY ANALYZER AND SEMICONDUCTOR MANUFACTURING DEVICE USING THE SAME

Patent Number: JP5291152
Publication date: 1993-11-05
Inventor(s): UCHIDA FUMIHIKO
Applicant(s): HITACHI LTD
Requested Patent: ☐ JP5291152
Application Number: JP19920095144 19920415
Priority Number(s):
IPC Classification: H01L21/205; G01N23/223
EC Classification:
EC Classification:
Equivalents: .

Abstract

PURPOSE: To monitor the film deposition process in the local region on a substrate surface within MOCVD (Metal Organic Chemical Vapor Deposition) or ALE (Atomic Layer Epitaxy) wherein a film is to be deposited at the pressure exceeding 10^{-3} Torr using a gas source material.

CONSTITUTION: Within a MOCVD device, a substrate 6 surface is irradiated with the X-rays emitted from a beam source 1 using focussing mirror 3 at an oblique incident angle close to critical total reflection angle. At this time, the X-ray signals transmitted from the substrate 6 surface are detected using an X-ray detector 5. Accordingly, the state of a deposited film on the substrate 6 surface can be monitored by a high lateral resolving power even at the pressure exceeding 10^{-3} Torr thereby enabling the pertinent deposition process requirements to be decided meeting the deposition requirements.